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States on Symmetric Logics: Conditional Probability and Independence. II

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Abstract

We study the notions of conditional probabilities, independence and ε-independence for states on symmetric logics. We prove that a non-atomic state on the logic with the Lyapunov's property is determined by its specification of independent events. We present the examples of (1) Δ-subadditive but is not subadditive and (2) two-valued non Δ-subadditive states on symmetric logic. We investigate the independence relation transitivity for a Δ-subadditive state. We also study continuity properties of conditional probabilities and ε-independence relation with respect to natural pseudometric for Δ-subadditive state. Finally, we pose two open problems. © 2013 Springer Science+Business Media New York.

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Keywords

Conditional probability, Independence, Quantum logic, State, Symmetric difference